

IN THE SPECIFICATION:

These replacement paragraphs are submitted to clarify the specification. Applicants submit that no new matter is injected into the application by way of the substitute paragraphs.

**Please replace the paragraph beginning at page 14, line 16, with the following paragraph:**

"Figure 2 illustrates another example of a conductive yarn structure suitable for improving signal integrity in a fabric-based signal transmission system according to an embodiment of the present invention. Referring to Figure 2, conductive yarn structure **200** comprises a twisted pair conductive yarn structure. Twisted pair conductive yarn structure **200** includes first and second conductive yarns **202** surrounded by insulating layers **204** and being twisted together to form a helical structure. Conductive yarns **202** are preferably made of multiple strands of a conductive material, ~~such as~~ such as copper, gold, steel, aluminum, silver, iron, any of the alloys from the above mentioned materials, and conductive polymers (inherently conductive polymeric materials, such polypyrrole, polyacetylene, polythiophene and polyaniline, doped conductive polymeric materials, carbon black-doped/impregnated polymeric yarns, metal coated polymeric yarns, or fibers and conductive yarns of all different kinds). As with the coaxial structure described above, the multiple strands are preferably twisted together to form a yarn. Insulating layer **204** may be made of any suitable insulating material, such as polyvinylchloride; rubber; rubber forming polymers, including polyisoprene, polybutadiene,

polychloroprene, and polyisobutylene; polyesters; polyolefins; and polyamides. The strands that form conductive yarns **202** may be twisted together using a conventional yarn twisting machine, as described above. Once conductive yarns **202** have been formed, insulating layers **204** are preferably added to conductive yarns **202**. Conductive yarns **202** are preferably then twisted into a helical structure using a yarn twisting machine."

**Please replace the paragraph beginning at page 25, line 17, with the following paragraph:**

"As with the twisted pair structures described above, floats can be formed in coaxial structures to facilitate electrical connection and disconnection. Figure 13 illustrates ~~[[and]]~~ an example of a coaxial structure with floats according to an embodiment of the present invention. In Figure 13, a fabric-based signal transmission system **1300** includes insulated conductive threads **1302**, **1304**, and **1306**, which are leno woven in the fabric to form a coaxial structure. Threads **1308** are woven in the fabric in the weft direction and may be conductive or nonconductive. In region PQ, the twisting of threads **1302**, **1304**, and **1306** is preferably stopped so that the threads run parallel to each other to form floats. These parallel floats may be used for selective electrical connection and disconnection with orthogonal threads at crossover points or for electrical device attachment, in the manner described above."

**Please replace the paragraph beginning at page 27, line 14, with the following paragraph:**

“In addition to twisted pair structures, coaxial structures can also be formed while the threads that form the coaxial structures are being warp knitted into a fabric. Figure 16 illustrates ~~[[and]]~~ an example of a warp knitted fabric-based signal transmission system including a coaxial structure according to an embodiment of the present invention. Referring to Figure 16, a warp-knitted fabric-based signal transmission system **1600** includes insulated conductive threads **1602**, **1604**, and **1606** being warp knitted to each other to form a coaxial structure and threads **1608**, which may be conductive or nonconductive. In operation, thread **1602** may be connected to an AC signal source and threads **1604** and **1606** may be connected to ground. Because grounded threads **1604** and **1606** surround conductive thread **1602**, electric fields produced by other conductors will have a reduced effect on signals on thread **1602**. Similarly, electric fields produced by thread **1602** will have a reduced effect on signals on other signal carrying conductors. As a result, signal-carrying conductors can be placed closer to each other in a fabric-based signal transmission system, increasing the potential device density and thereby increasing the functionality of garments incorporating such devices.”

**Please replace the paragraph beginning at page 31, line 15, with the following paragraph:**

“In addition to warp knitting, twisted pair conductive yarn structure **200** can be weft-knitted into a fabric. Figure 22 illustrates a fabric-based signal transmission

system **2200** in which twisted pair conductive yarn structure **200** is weft knitted in a fabric. In Figure 22, a fabric-based signal transmission system includes a conductive yarn **2202** being weft knitted in a fabric with a plurality of additional yarns **2204**. Conductive yarn **2202** may be similar in structure to twisted pair conductive yarn structure **200** described above. Yarns **2204** may be conductive or nonconductive. In operation, the conductors of yarn structure **2202** may be oppositely driven. Alternatively, one conductor of yarn **2202** ~~2200~~ may be connected to a signal source and the other conductor may be grounded, as described above."

**Please replace the paragraph beginning at page 36, line 3, with the following paragraph:**

"Braided coaxial conductive yarn structures **2500** can be woven into a fabric to form a fabric-based signal transmission system. Figure 26 illustrates an example of a fabric-based signal transmission system including braided coaxial conductive yarn structures according to an embodiment of the present invention. Referring to Figure 26, a fabric-based signal transmission system **2600** includes braided coaxial conductive yarn structures **2500** woven into a fabric with yarns **2602**. Yarns **2602** may be conductive or nonconductive. If yarns **2602** are conductive, they are preferably insulated. Inner conductive yarn **2502** of one of conductive yarn structures **2500** is connected to a signal source **2604**. The outer braids of structures **2500** are preferably connected to ground **2606**. Because the outer braids of structures **2500** are grounded, crosstalk between adjacent structures **2500** is reduced. More particularly, when an AC signal is applied to inner conductive yarn **2502** of one or

Serial No.: 10/609,074

both of coaxial conductive yarn structures **2500**, outer braids **2506** of braided coaxial conductive yarn structures **2500** block electromagnetic fields emanating from the inner conductive yarn **2502** connected to signal source **2604**."